ARCTIC NAVIGATION: RECENT DEVELOPMENTS

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Panel III: Arctic Shipping
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Preview

- Arctic ice cover
- Shipping routes
- Polar Code
The 2012 Arctic sea ice minimum, on September 16, 2012, reached the lowest ice extent in the satellite record.
—Credit: National Snow and Ice Data Center
Some Arctic Routes used for International Navigation

- Bering Strait
- Northwest Passage
- Northeast Passage
- Arctic Ocean ("over the top")
- Eastern Arctic Straits
General Portrayal of the Major Arctic Marine Routes

Source: http://www.marinelog.com/DOCS/PRINTMMV/MMVjularc1.html, adapted from the report of the Arctic Marine Transport Workshop held September 28-30, 2004
Trans-Arctic Shipping

- Trans-Arctic shipping is happening
- During summer of 2013 there were at least 71+?? transits of the Arctic Ocean (only 24 in 2010)
  - 71 via Northern Sea Route (5 in 2010)
  - ?? via the Northwest Passage (18 in 2010, 21 in 2012)
  - One circumpolar in 2010
- More transits are expected in 2014
- 185 documented full transits of Northwest Passage 1853-2012
NORTHWEST PASSAGE AND NORTHERN SEA ROUTE compared with currently used shipping routes

Shorter distance: around 3,900 to 4,500 nm in both cases

Northwest Passage
Northern Sea Route
“Over the Top”

- Year round ice covering the high seas areas of the Arctic Ocean, including the North Pole, suggests that to date there has been few transits “Over the Top”.
- Reliable data does not appear to be available.
Eastern Entrances to Arctic Ocean

- To NSR from the Kara Sea through the straits Yugorskiy Shar or Karskiye Vorota, or from the Barents Sea by passing north of Ostrova Novaya Zemlya around Mys Zhelaniya
- Through the Greenland Sea between eastern Greenland and Spitsbergen
- From the Barents Sea between Svalbard and Franz Josef Land
Bering Strait

- 51 nm wide, divided into two straits
  - East of Little Diomede Island (US)
  - West of Big Diomede Island (Russian)
  - Each about 22.5 nm wide
  - Diomede islands are about 2.4 nm apart
- Transits rose from 220 in 2008 to 480 in 2012
- No routeing measures in place
- Some AtoN
- 2 year PARS underway by USCG
NOAA Nautical Chart of Bering Strait

Source: Wikipedia, Bering Strait
Polar Code

- Following adoption in 2009 of the Guidelines for Ships Operating in Polar Waters, IMO agreed to develop a mandatory Code for ships operating in polar waters (Arctic and Southern Oceans).
- Various subcommittees progressed the work 2010-2014 but not all are finished.
- MEPC and MSC considering the draft Code in 2014.
- Expectation: mandatory code will become effective in 2015 by tacit amendments to SOLAS and MARPOL annexes, but Part II may be delayed until 2016.
Polar Code Structure

- Mandatory measures covering
  - Part I-A: safety
  - Part II-A: pollution prevention
- Recommendatory provisions
  - Part I-B: safety
  - Part II-B: pollution prevention
- New SOLAS chapter XIV, Safety measures for ships operating in polar waters:
  - MSC 93, May 14-23, 2014 and MSC 94, November 17-21, 2014, also considering Parts I-A and I-B
- New chapters for MARPOL Annexes I, II, IV and V:
  - MEPC 66, April 2014; MEPC 67, October 13-17, 2014; and MEPC 68, May 2015, considering Parts II-A and II-B
## Polar Code Safety Chapters

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<thead>
<tr>
<th>Mandatory</th>
<th>Part I-A</th>
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<tbody>
<tr>
<td>Introduction</td>
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<tr>
<td>1- General</td>
<td>7 – Fire safety/protection</td>
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<tr>
<td>2 – Polar Water Operational Manual</td>
<td>8 – Life-saving appliances and arrangements</td>
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<tr>
<td>3 – Ship structure</td>
<td>9 – Safety of navigation</td>
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<td>4 – Stability and subdivision</td>
<td>10 – Communication</td>
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<td>5 - Watertight and weathertight integrity</td>
<td>11 – Voyage planning</td>
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<td>6 – Machinery installations</td>
<td>12 – Manning and training familiarity</td>
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</table>
Polar Code Safety Recommendations

- Part I-B Additional Guidance
- Chapter 1, Definition
- Chapter 2, Polar Water Operational Manual
- Chapter 3, Ship structure
- Chapter 8, Life-saving appliances
- Chapter 9, Safety of navigation
- Chapter 11, Voyage planning
Polar Code Pollution Measures

- Part II-A: Mandatory chapters on prevention of pollution by
  - 1 – Oil
  - 2 – Noxious liquid substances
  - 4 – Sewage from ships
  - 5 – Garbage
Polar Code Pollution Guidance

- Part II-B: Recommendatory information and additional guidance
- General information
- [BWM management]
- [Anti-fouling]
- [Bio-fouling]
STCW Polar Amendments

- Sub-Committee on Human Element, Training and Watchkeeping (HTW) (formerly STW)
- HTW 1 (17-24 February 2014) formally endorsed chapter 13 [now 12] of draft Polar Code on training and certification for ships operating in polar waters
- HTW 1 progressed work in developing amendments to update certification and training requirements for officers and crew serving on board ships operating in polar waters in Chapter V of annex to STCW Convention, to reflect training requirements in draft Polar Code
Polar Code – MEPC 66

- Met 31 March-4 April 2014
- Considered draft Code and many papers
- Report of meeting: MEPC 66/21, pp. 50-55, paras. 11.19-11.53
- Correspondence Group to finalize work on amendments to MARPOL Annexes and Parts II-A, II-B, and provide written report to MEPC 67
- Will continue work on the Annexes and Polar Code at MEPC 67 (October 2014) and planned to conclude at MEPC 68 (May 2015) (MEPC 66/21, Annex 18 Planned Output No. 5.2.1.15 and Annex 19)
Polar Code – MSC 93

- Met 14-23 May 2014
- Polar Code Agenda item 10 (14 papers on Polar Code)
- Working Group prepared clean text of Chapter XIV (MSC 93/WP.7)
- Working Group prepared cleaner text of Parts I-A and I-B (MSC 93/WP.7/Add.1)
- MSC 93 approved draft SOLAS Chapter XIV for circulation with a view to adoption at MSC 94
- MSC 93 approved, in principle, draft Polar Code with a view to adoption at MSC 94 in conjunction with adoption of associated new SOLAS Chapter XIV
Polar Code – NCSR 1

- Sub-Committee on Navigation, Communications and Search and Rescue (NCSR 1) (formerly COMSAR and NAV)
- Meets 30 June-4 July 2014 to consider
- Polar Code Chapters 10 and 11 and portion of Chapter 12 on reporting: NCSR 1/23
- NCSR 1/23/1 (USA) revisions to Chapter 11
- NCSR 1/27/3 (Canada and others) Participation in WMO VOS Ships’ Scheme – Arctic observations
- Further taskings from MSC 93 per WG recommendations
- Comments and recommendations directly to MSC 94
Polar Code - MEPC 67

- Meets 13-17 October 2014
- Polar Code is Agenda item 9
- Papers due 11 July or 8/22 August 2014 depending on length/subject matter
- May approve the amendments to MARPOL Annexes and Part II of Code for circulation; if not, at MEPC 68 May 2015
Polar Code – MSC 94

- Meets 17-21 November 2014
- Entry into force date to be determined at MSC 94
## Tacit Acceptance Procedure

<table>
<thead>
<tr>
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<th>Entry into Force</th>
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<tr>
<td>Approve for circulation</td>
<td>Minimum 6 months</td>
<td>Adoption</td>
<td>Minimum 10 months</td>
<td>6 months later</td>
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New Polar Code Approach

- Polar Code applies new IMO risk-based approach to its regulations
- Mandatory provisions set out functional requirements and risk-based performance standards
- SOLAS regulations and MARPOL annexes use traditional prescriptive measures
- Polar Code adjusted to “marry” the two
- Compliance to be measured against prescriptive requirements in SOLAS or Polar Code
- What in Polar Code is a “rule or standard”? 
Applicability - SOLAS

- Polar Code will apply to ships operating in polar waters certified to do so.
- Ships constructed before entry into force of Chapter XIV have one year thereafter to meet the relevant requirements of the Polar Code.
- Intention is to apply the Code to new and existing ships certificated under SOLAS, whether or not such ships are engaged on international voyages.
- Non-SOLAS ships are not required to meet Code requirements, but may do so.
- Polar Code does not apply to government ships on non-commercial service, although encouraged to do so in a manner consistent, insofar as reasonable and practicable, with Chapter XIV.
Applicability - MARPOL

- Not yet decided